

## Chapter 4 Operations

---

At the heart of the Cold War missile program were the missiles themselves....One must remember, however, that the missiles themselves were only a small part of the operational weapon system; something akin to a bullet in a gun. To become effective instruments of combat power, the missiles had to be banded in secure launch facilities, directed to their targets by complex guidance systems, and maintained by dedicated crews and supported by an extensive logistic network.

*~ To Defend & Deter, The Legacy of the United States Cold War Missile Program. 163 ~*

Alaska's two Nike battalions and their direct support ordnance companies fell under the command of the U.S. Army Alaska (USARAL) Artillery Group, headquartered at Fort Richardson. The Group was directly responsible to the USARAL Commanding General for Army participation in the active air defense of Alaska, which involved Nike Hercules batteries, fighter interceptors, and the associated early warning radars and communications systems.<sup>22</sup> The Nike system was part of a closely coordinated air defense effort managed by the North American Air Defense (NORAD) / Continental Air Defense (CONAD) Region Combat Center at Elmendorf Air Force Base. (See Chart 1, p. 18)

Filtering down to the battery level, running the missile battalions required a streamlined command and control system as well as completely reliable communications with the NORAD command units and the Air Force. The missile battalions were organized with a headquarters battery and the requisite number of missile (firing) batteries. Headquarters personnel were charged with command, administration, operations, training, maintenance, supply, and communications management. The Army Air Defense Command Posts (AADCP) also fell under the headquarters battery. Each individual missile site then was composed of two platoons; the battery control platoon and the launcher platoon.

### Army Air Defense Command Post (AADCP)

The Army Air Defense Command Post (AADCP) was part of Headquarters and Headquarters Battery. The AADCP was a crucial communication link connecting the Nike sites to each other, to the Air Force, and to the NORAD control centers. AADCPs monitored the skies to determine whether aircraft were friend or foe, and would have controlled the Nike batteries during an authentic target engagement. In addition to controlling the batteries during a fight, the AADCPs also designated battery alert statuses, choosing which sites were on fifteen minute, one hour or three hour alerts.

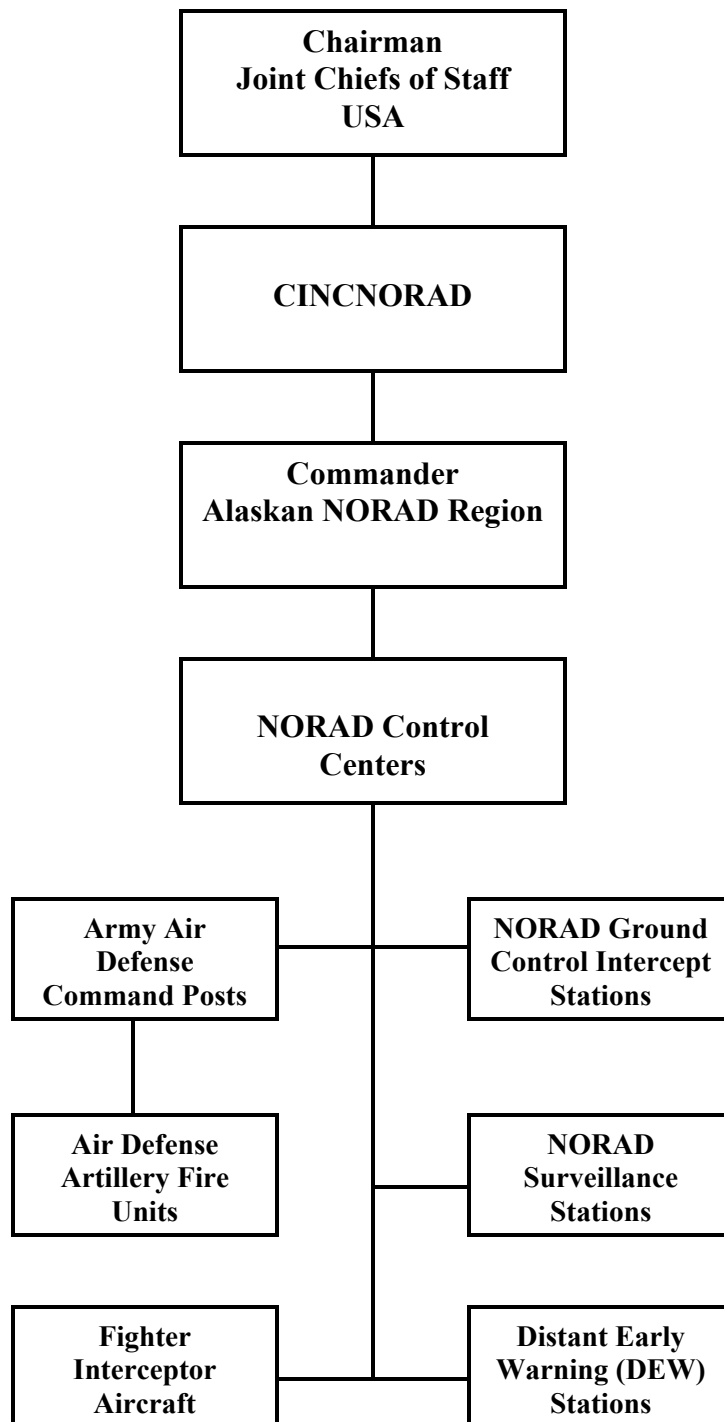
There were two AADCPs in Alaska, located at NORAD command posts on Murphy Dome and Fire Island. The Murphy Dome AADCP controlled the Fairbanks Nike batteries while Fire Island controlled Anchorage. In 1969 the Fire Island NORAD control center was closed, and the associated AADCP relocated to Site Point, A Battery, in Anchorage. Battery A was a double

---

<sup>22</sup> 'A Century of Partnership, USARAL,' USARAL Pamphlet 360-11. 4 November 1967.



CHART 1: NORAD CHAIN OF OPERATIONAL CONTROL <sup>23</sup>



<sup>23</sup> From ANR/ACRR 23-, HQ Alaska NORAD/CONAD Region. May 1969. Additional info on Canadian aspect of the system can also be found at the same reference.



firing unit with twice the facilities of the typical Alaskan Nike site. One firing unit was deactivated in 1969/1970 and the AADCP operations occupied the extra facilities.

The AADCPs were manned by approximately four officers and seventeen enlisted men.<sup>24</sup> S.E. Thomas was a tactical director at the Anchorage AADCP when it was located at A Battery, Site Point. “Most of our time...all we [did was] train, train, train, train,” he remembered. Typical duty involved studying air corridors, and watching the scopes for unidentified aircraft. AADCP duty was similar to Nike duty in that personnel were working at isolated sites that required round-the-clock staffing. The AADCP had to be one hundred percent accurate when identifying enemy aircraft so friendly planes were not inadvertently shot down. Men spent countless hours studying the rules of engagement. Training exercises were conducted very seriously – ‘real world.’ AADCP Crew Chief Dan Gillman said the high stakes could make for stressful working conditions: he remembered a soldier succumbing to the pressure and fainting during an exercise.

An interesting and important component to AADCP operations was the plotting board where personnel kept track of aircraft on a transparent Plexiglas map board. Though everything was electronically managed, the plotting board provided commanders a useful visual aid, and it served as an information backup in the event of a power failure. The man plotting stood in back of the board so everyone in the room had an unobstructed view. Therefore, the plotter had to write backwards for the people viewing it from the opposite side: S.E. Thomas stated, “I tried it and it was hard for me...it was almost like writing Chinese.” Another remembered, “Sometimes after a long exercise in that position you would find yourself writing backwards on things by accident or forgetting which direction certain characters normally faced. I specifically remember having to re-teach myself which direction the number “5” is supposed to face once.”<sup>25</sup>

## Integrated Fire Control Area

Nike batteries were divided into two areas: a launch complex and an Integrated Fire Control (IFC) area. The sections were separated by at least one to two miles, with the IFC occupying the higher ground for radar purposes. The sites were divided because the Missile Tracking Radar (MTR) needed to be distanced from the launch pad in order to track fired missiles.

The IFC area was mainly one large composite building containing the barracks, mess hall, PX, offices, and the radar and control systems to operate the missile launchings. The radars for tracking incoming targets and guiding missiles in flight were located in close proximity to the building. There were four radars including the Target Tracking Radar (TTR), Target Ranging Radar (TRR), Missile Tracking Radar (MTR), and High-Powered Acquisition Radar (HIPAR). The MTR, TTR and TRR were



**Figure 14:** HIPAR, Site Summit. Courtesy Gregory Durocher.

<sup>24</sup> Historical Report 1 January 1968 – 30 June 1968. 626<sup>th</sup> Aircraft Control and Warning Squadron, Fire Island Air Force Station, Alaskan Air Command. Elmendorf AFB History Office, Fire Island.

<sup>25</sup> Site Point, Alaska: The Last North American AADCP of the Last Operational Nike Hercules Missile Battalion, [http://home.att.net/~jsstars/1\\_43/AADCP.html](http://home.att.net/~jsstars/1_43/AADCP.html).



designed with special retractable clamshell covers for sheltered maintenance and periodic de-icing during the winter months.

The TTR and TRR, similar in designation and function, tracked incoming targets communicating aircraft range, direction, elevation, and speed information to the computer. The TRR was instrumental in preventing enemy radar jamming, a potentially serious threat to the execution of a missile launch.<sup>26</sup>

The MTR, as the name suggested, followed the path of fired missiles, relaying direction, elevation and speed data to the computer, and communicating the missile detonation command. The MTR also communicated guidance commands to the missile in flight to allow it to follow aircraft taking evasive maneuvers. After a missile was detonated the MTR locked onto the next missile readying for fire on the launch pad: the MTR could only direct one missile at a time.



**Figure 15:** Fire Control Van, Site Summit.  
Courtesy Billy Sparks.

The HIPAR, sometimes referred to as the ‘golf ball’ for its similar appearance, was a prominent feature of the Nike sites. This radar, the largest on-site, swept the skies seeking targets at a much greater range than the TTR and TRR. HIPARs were added to Alaskan Nike Hercules sites in 1962 after live fire exercises revealed some problems with the target acquisition. Installation of the new radar took about sixty days at each site.<sup>27</sup> The HIPAR was an important tactical addition to the system, giving the batteries more preparation and warning time, and allowing missile detonations to be executed at a greater distance from the sites. The farther away missiles were destroyed the better, for as Billy Badger recalled, “we finally figured out that if we were to fire one at an aircraft when it first came on our screens, by the time it got there at the speed that they travel and we burst a good one right up in front we were probably going to get burned but nobody ever talked about that.”

The radar and fire control operating equipment were housed in two mobile vans installed in the IFC building. Originally the Nike Hercules system was designed as a mobile unit. When land limitations forced the Army to build permanent Nike emplacements, it was easier to adapt the mobile structures into a permanent building rather than redesign the entire system. The vans were installed side-by-side so the battery commander could easily walk between the two areas.

<sup>26</sup> Nike Radars and Computers. April 1971. U.S. Army, Missile and Munitions Center and School. Redstone Arsenal, Alabama. MMS Subcourse 150. Available from <http://ed-thelen.org/MMS-150.html>.

<sup>27</sup> Fact Sheet ‘HIPAR Radar at Alaskan Nike-Hercules Sites’ On file in Public Affairs Office, Fort Richardson, Nike files.



There were two vans: one for fire or battery control, and the other for radar control. The battery commander would have spent the majority of his time in the battery control van, where the firing



**Figure 16:** Soldiers perform maintenance on radar, Site Summit. Note closed clamshell covers. U.S. Army photo.

button was located. This van contained communications equipment linking the commander to the Army Air Defense Command Post (AADCP). AADCP controlled target engagement and relayed information and orders from NORAD control centers. A great deal of equipment was packed into the battery control van including the battery control console assembly, the acquisition radar cabinet assembly, the computer assembly, plotting board, an event recorder and a switchboard cabinet assembly. Including the battery commander, or duty officer, there would have been about four people in the 40' x 8' van.

The radar control van, also known as the tracking trailer, contained all the radar operating equipment such as the target radar console, missile tracking radar console,

radar power cabinet assembly, the radar range and receiver cabinet assembly and additional TTR and MTR equipment. The men working in the IFC area were sometimes called 'scope dopes', while the launcher crewmen were known as 'pit rats'.

Maintaining the radar equipment and computers was an endless job. Flawless operations were essential since a minor mistake could trigger a misfire. Equipment was put through a battery of daily, weekly and monthly checks. Computers of the age were large, loud machines that needed constant fine-tuning as Bobby Pace remembered:

"We had electron tubes. We didn't have the good solid state stuff that you have now....The fire control equipment used to be in a 16-foot by 8-foot van. And that same equipment now could probably be put into a brief case.... Some electron tubes would be five inches high and two inches wide...They changed their outputs real rapidly or easily....The reliability of the equipment then was not very stable. It changed frequently. That's why every two hours we had to check the alignment of it. And we used to use the phrase touch it up, peak it up, tune it. Where nowadays the equipment would stay probably for months cause they use solid-state devices now. But back in those days it was just old electron tubes."





**Figure 17:** Missilemen walking to Control Area of a Fairbanks Nike site, 1962. Note open clamshell cover on radar, right. U.S. Army Photo.

## Launch Area



**Figure 18:** Launch area, C Battery, Fairbanks. Missiles peaking behind earthen barricades. Courtesy Edward Hogan.

Missiles were stored, assembled and launched from the launching area. This part of the site contained the missile launch and storage buildings with their associated launch pads, the launch control building, facilities for guided missile maintenance and the dog kennels.

Operations within the launch area consisted of several primary duties; assembling and maintaining the missiles, maintaining the launch area, and preparing missiles for a firing, be it an exercise or a real alert.

Launcher crewmen spent more time outdoors than their counterparts working in the fire control area, as Joe Leone of C Battery in Fairbanks remembered. “We had to do all the maintenance, painting, make sure all the unit was operating properly. And keeping the outside of the launchers free of ice, [and] snow, which took a lot of time. Even though the concrete was heated on the colder days we had to get out there and chisel the ice and snow off. And we were there for the record cold....I remember seventy below.” Besides keeping the launch pad clear, the crew also had to work outside when preparing missiles for a live fire exercise or during an Operational Readiness Evaluation. Officer Don Neal describes the process:



During the annual live firing exercise in the Fairbanks defense area, I had to evaluate the downrange preparation of the missiles and boosters. The booster cluster had four igniters that had to be electrically checked out and screwed into the individual booster bodies. On launch, these igniters fire and light off the booster propellant. And the igniters were full of black powder, sensitive to handle – you don't want to drop one. It's got to be done outside, so you're out there, the wind's blowing and it's 35 below. You've got all your heavy clothes on, but to test and then to get the igniters started into position, you've got to use your bare hands. I'd stand there observing, gloved hands in my pockets, wishing I was someplace warm, watching those crewmen working without any gloves. It was tough duty!<sup>28</sup>

Dan Caputo remembered the impact a Nike site's weaponry could impart as he entered a storage bunker at C Battery in Anchorage as a young soldier. "I tell you it was an awesome sight ...you just look around at the power that was there. And...you were an 18 year old kid, you were in the middle of nowhere, and you walk into this giant, big old looking thing and its got these missile parts and missile noses and you just stand there in awe and say what the hell am I doing here?"

Launcher crewmen also expended a lot of time inspecting the missiles and checking the guidance system. Warrant Officer Ernie Collins explained:

We had a great deal of test equipment. Our normal...job was to maintain the missiles and test equipment. Missiles got monthly, quarterly and annual checks. They had a daily inspection...which was a visual inspection. And on the periodic inspection, that included checking the guidance system of the missile itself and associated electronic equipment.

Alaskan missile sites were notable for their above-ground launch structures. In the Lower 48 land constraints often forced the launch building to be constructed underground, with the launch pad on top of the building. The missiles were raised to the launch pad on missile elevators. This reduced the amount of land needed for the batteries; land was costly in urban areas, and often had to be withdrawn from private ownership in the name of national security. In Alaska, however, land was abundantly available so the buildings could be built above ground.

Ira Rion, who worked at Nike sites across the country, remembers Alaska's above-ground launch buildings afforded a more pleasant working environment than the underground structures where the men labored in the subterranean dark, day and night. "Here it was different it was all above ground....I think it was nicer, for morale to the men. You know, if you're working in closed buildings all the time it's not too good for morale."

In the early years of Nike operations, launch crews often had to walk the one or two miles down to the launch complex from the battery control building where they had meals and permanent housing. Later, personnel vehicles became available and frequent 'pass runs' were driven between the two areas. When a battery was on 'hot' status crewmen spent the night in the launch complex. There was a bunk and recreation room in the back of the assembly building where men could catch a few hours sleep or play cards and pool.

---

<sup>28</sup> Don Neal, correspondence with Kristy Hollinger, June 2004.



## Support

Nike Hercules was a highly complex system composed of over 1.5 million individual parts. In addition to those manning the batteries, there were a number of people working hard behind the scenes to ensure sites remained operational. The U.S. Army Ordnance Corps, the military branch responsible for supporting the development, production, acquisition and sustainment of weapons systems, played an important role in maintaining the Nike system.<sup>29</sup> There were two companies supporting the Alaskan batteries; the 524<sup>th</sup> for Fort Richardson and the 166<sup>th</sup> for Fort Wainwright. The Corps supported the Nike mission by assisting the batteries with their prolific maintenance requirements. Ordnance companies performed repairs on virtually every component of the missile sites - from the radars to the missiles themselves.

Each company consisted of approximately one hundred men.<sup>30</sup> As batteries experienced equipment troubles that were beyond their capabilities, Ordnance was called out to do the repairs. George Wallot describes ordnance duty at Fort Richardson: "Our work consisted of two basic types. Fixing and calibrating modules in the shop, and on-site repair and calibration of the missile batteries themselves. Every fourth weekend, we were on call in case of emergency. One weekend when I was on call, I was rushed to the military airport with my tool box and a big Chinook helicopter with me as the only passenger...whisked off to Goose Bay at C battery." Mr. Wallot remembered that most of the maintenance problems he dealt with were related to replacing and recalibrating the numerous vacuum tubes in the Integrated Fire Control (IFC) computers, which were notoriously temperamental.

Besides the Ordnance Corps, there were also a small number of Department of the Army civilian employees supporting the command, most of whom were assigned out of Redstone Arsenal, Alabama. These highly skilled personnel were on call 24 hours at a time to address problems which needed to be solved quickly. Don Neal remembered the men were very dedicated, "I recall several instances when one was sent to the Fairbanks defense on no notice in the dead of winter, staying on site for days or weeks hunting down a particularly tricky glitch in the system...it made the young soldiers feel better to see civilians right there in the middle of things, trying to get the system back in action."<sup>31</sup>

## Site Security

Nike duty was considered extremely sensitive due to the weaponry stored at the sites, and ideally all personnel needed a Secret Clearance. At times soldiers were sent to a battery before their clearance paperwork processed. Subsequent background investigations occasionally revealed an individual to be a security risk unsuitable for the high level of clearance necessary to work at the site. Bob Eaglesham of C Battery in Fairbanks remembered these men had a hard time:

---

<sup>29</sup> U.S. Army Ordnance Corps Online. <http://www.goordnance.apg.army.mil/OrdnanceMission.htm>

<sup>30</sup> The Fort Wainwright Ordnance Corps company was located in Building 3475 on the south side of the cantonment. The building was constructed in 1958. After the deactivation of the Fairbanks Nike defenses in 1971 it served as a general maintenance facility. The Fort Richardson Ordnance company was located in Building 789. The missile repair facilities were located in a series of buildings off the Glenn Highway, which are now occupied by Range Control.

<sup>31</sup> Don Neal, communication with Kristy Hollinger, June 2004.





Those poor fellows some of them would stay on the missile site and just do menial work because they weren't allowed to do any of the mission work because...they couldn't get into the launcher area where all the missiles were. So they were pretty much confined to the unclassified areas and they stayed on KP and it was a shame. Or worked in the motor pool, did other things that were not essential because they couldn't get a security clearance.

Nike personnel operated under a strict two-man rule. No one was supposed to go anywhere without at least one other person. Accordingly, if one man had dubious intentions, another would be present to stop him. With the exception of certain staff that required access everywhere, soldiers were not supposed to enter areas they themselves did not work. As explained by Edward Hogan "you had to have clearance, you know you had to have a reason to be in there. You know just because you had a secret clearance didn't mean you could go everywhere...I had a secret clearance but I didn't go into the modules inside the locked room where they fired the missiles from because I had no need to know."

Each Nike battery had a contingent of Military Police generally consisting of twelve to fifteen men. MPs guarded the Nike sites against sabotage and unauthorized access twenty-four hours a day, seven days a week. They spent most of their time in the launch complex. Two fences surrounded the area; the outer fence was known as the limited area, and the inner fence was the exclusion area. The fence tops were strung with barbed wire. MPs checked every man going in and out of the site at a guard post on the outer fence. The area inside the limited fence was the most secure part of the Nike site. As MP Greg Durocher said, "we often joked about the outer fence, it was halt, halt, bang. The inner fence it was bang, halt, halt." Every site had approximately five guard dogs to patrol the area between the two fences.

In addition to preventing genuine unauthorized access incidents, MPs also had to be on the alert for test infiltrations of the site from their own headquarters or from the counterintelligence corps. Jackson Murray was the S-2 in charge of site security for all the batteries. He remembers a fortuitous coincidence that helped him foil a counterintelligence infiltration:

I went up on the site one day and the first sergeant said to me, thanks for the new man. And I said what new man? He said, the corporal just reported in. I said let me see his orders. And he dug out a piece of paper

Launcher crewman Joe Leone relates a dog encounter at C Battery, Fairbanks.

We had to call the MP's in the guard panels at the guard shack if we wanted to go out to the assembly building and use the bathroom. Which was fun sometimes, because the dog handlers were a pretty wild bunch of guys. They'd let us out the gate knowing that the dog was running around, and we'd get out of the gate and all of the sudden this German Shepherd is tearing up the hill at you, and you know we'd make a beeline for the gate. It was only ten feet away but it scared you.



**Figure 19:** Dog and handler inside fence. U.S. Army photo.



and...I recognized the signature of the Adjutant General in Washington...because he's the one who signed my commissions. And I said where is this guy? He said, oh he's in the mess hall. I said go get him. And actually it was a counterintelligence penetration attempt. And this guy had showed up with a corporal's uniform on and a set of orders. We never got orders [like that], it was all typed, all mimeographed orders. And here was a big set of orders. And if I hadn't have been there they probably would never have noticed it.

Murray also practiced infiltrations of his own to ensure the batteries were securely guarded:

I managed to break into quite a few of the sites. It was my job to see if I could penetrate, and I did....Well one time it's like thirty below zero and it's cold out there...but we were wearing parkas with big fur hoods on them and everything. So when the mess truck pulled up with hot food they had a cook and somebody's helper there and another guard and I just fell in behind the group and just kind of snuck right in and they didn't notice I was in until I was already there. And I told them, you've been penetrated. And he says actual or a test? And I said actual, I'm here. And the stripes flew.

Counterintelligence did not always circumvent security so easily, as Dan Caputo of Site Summit explained:

The job of the infiltrators was to try and con their way into the missile site. They weren't supposed to climb the fences or cut the wire. But I guess for pride and everything else they used to try and climb the fences. And that's when the canine dogs had a field day. I remember a couple of [these guys] being caught up on the barbed wire, hanging, one leg over each side of the wire and the dog pulling at him.

MPs worked long hours guarding the Nike sites twenty-four hours a day, seven days a week, with just twelve to fifteen personnel. The presence of guard dogs aided security considerably, since they could be released between the fences, protecting a large area from infiltration. As Jackson Murray said, "They could pick up a person a lot better than a man could as far as seeing them, hear[ing] them." However, the dogs could not eliminate the inherent tedium and loneliness of guard duty, as Ira Rion remembered. "They actually controlled the fence at night with the dogs. Well they used to say most guys talked to their dogs at night but [when] one of them thinks his dog's talking back to him it's time to pull him. Because it could get a little bit hairy out there at night. Especially in the winter."

The guard dogs were trained to be vicious, but a few were particularly bad tempered. Dog handler Edward Hogan of C battery in Fairbanks stated: "I had a very vicious dog. The most vicious dog there and he'd bite anybody that he could reach including myself occasionally."



**Figure 20:** Guard shack, Gate 2. Site Summit. Courtesy Gregory Durocher.



The Nike sites were well guarded and security breaches were rare. Site Summit, however, was uniquely situated near a popular hiking and recreational area, on the border of Chugach State Park. Joe Holland, Launcher Chief at Site Summit, recalled that blueberry season brought many people to the area, and some walked a bit too close to the site. “We would tell them, look, just go on back down the hill and everything will be fine,” said Joe Holland, “Once in a while we would have somebody who was really obstinate. So...we’d call post and they would send MPs up there and take them away.” Greg Durocher also remembered, “we did interdict tourists basically, you know wandering around and telling them to head back down and confiscate cameras if necessary. And the base would develop the film and if there was any pictures of the missile site then they would be confiscated.” Billy Sparks relates another Site Summit security incident that occurred in the mid 1970’s during a period of tension with the Middle East. A group of hikers were spotted walking towards the site. “And they were just tourists or something. And they came up through the ski bowl and just started hiking up through here. And so we sent a platoon down and we captured them. And the CIA or something came and picked them up and took them down there. And they determined they weren’t involved in anything.”

Site Summit was not the only battery to experience security issues. MP Thomas Kontes describes an incident that arose at C Battery, in Fairbanks:

The only security breach we had up there was a bear, and we let him in on purpose. We actually enticed him in through the gates, in the lower area. This wasn’t up at the high security, this was down below. But still....And the bear went up to the dumpster and we left the trap door up in the dumpster and the bear crawled in. I sneak up with a broom handle and flip the door shut. And the bear kicked around in there for a while but it was dark in there so he laid down quietly. And the Mess Sergeant we had at the time...we knew his habit was to come out and throw the garbage away in the morning. So we sit down there waiting and all of the sudden he came out. I wish I had a video camera. But he grabbed [the door and] threw that open and was going to throw the bag in. And as soon as that bear saw daylight it just leaped out!... And the bear had enough sense to know hey, I can run through this gate.



**Figure 21:** Defensive sandbag bunker, Site Summit, IFC area. Courtesy Billy Sparks.



**Figure 22:** Billy Sparks in front of bunker, Site Summit. Courtesy Billy Sparks.



Well we hit the electric button and had the gate open[ed] and the bear went and then we closed it. And we got called into the Captain's office about two hours later. He wanted to know how a bear could get into a security area without us knowing it.

In the mid 1970's political tension in the Middle East prompted the Site Summit Battery Commander to bolster site security measures by fortifying bunker positions with sandbags and digging defensive foxholes around the battery. In addition to these measures the MPs were ordered to clear all rocks larger than six-inches off the mountaintop. The purported rationale was to remove potential cover in the event of an attack on the missile site. The MPs unenthusiastically started piling up rocks and dumping them off the mountainside. But as Greg Durocher remembers, they dumped more than rocks over the side:

In the course of rock-picking, we came across what appeared to be some kind of fence post – a round pipe about 5 feet long with a big cylinder of concrete molded around one end. Since the end was much more than 6 inches across, we consigned it to the [rock] pile as well. It took a couple of us to hurl it over the fence, and we all watched in fascination as the accelerating mass caused the opposite end of the pipe to whop the tundra like a giant flail. It got moving fast enough to disappear over the lip leading to the steep hillside below. Our visual treat was just beginning, however, as its path took it through the giant Christmas star that we see from Anchorage, and we witnessed numerous 60-watt light bulbs come flying into view, along with assorted strands of wire and support posts. We could follow the path of our unseen juggernaut by the brief appearances of the stellar remnants being hurled into the air. Now you almost had to be there, but to a bunch of grumpy 20-something's this was the most hilarious thing we'd seen in ages. We were laughing so hard I don't know if any of us could stand up. We howled for several minutes, and nothing got done for quite a bit longer.

